

2 copies

Exhibit # 519

PROBABLE EFFECTS OF PIPELINE
CONSTRUCTION ON THE DOMESTIC
FISHERY IN THE MACKENZIE VALLEY

EVIDENCE OF

R. F. PEET

MACKENZIE VALLEY PIPELINE INQUIRY

MARCH, 1976

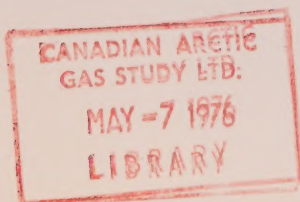


TABLE OF CONTENTS

	<u>Page</u>
Introduction	1
The Domestic Fishery	3
Sports & Commercial Fisheries	5
Effects of Pipeline Construction	6
Conclusions	8
Appendix 1 Biographical Information	10
2 Summary of major fish species of importance in the Mackenzie Valley	11
3 Summary of commercial fishing areas pertinent to the Mackenzie Valley Pipeline Route	12
4 Areas of the Mackenzie River Delta and lower Mackenzie River	15
5 List of sports fishing lodges, naturalist facilities and sports fishing areas along the Mackenzie Valley Pipeline Route	19
6 Summary of domestic fishing areas, species caught and periods of fishing	20
7 References relied on	22

INTRODUCTION

This brief concerns the probable effects of pipeline construction on the domestic fisheries of the Mackenzie Valley. Some of these effects, discussed below, will lead to developments which will be of direct concern to the Northwest Territories District Office of the Fisheries and Marine Service, which is responsible for enforcing the provisions of the Federal Fisheries Act and pertinent regulations promulgated under the Act such as the N.W.T. Fishery Regulations; and to the Fishery Management Division, of the Fish Resources Section, Fisheries and Marine Service Western Region (H.Q. Freshwater Institute, Winnipeg).

It is the responsibility of the Fishery Management Division to develop, operate and maintain a management programme for the fish resources of the N.W.T. in accordance with the provisions of Section 34 of the Federal Fisheries Act. The programme is implemented by formulating, recommending and putting into force, management controls specific to sports and commercial exploitation but not for domestic exploitation as pointed out below. These controls are based upon biological information collected under our own or other auspices (especially the N.W.T. Government) and are arrived at in close consultation with the District Office, F & MS and the N.W.T. Government. The usual vehicle of such controls is in variation orders to the N.W.T. Fishery Regulations, changes to regulations and maintenance of the various schedules of the regulations.

Activities of the Division and the rationale used for the management of the fisheries resource in the N.W.T. derive in large part from the recommendations of the Federal-Territorial Task Force on Fisheries Development in the N.W.T.. These are contained in the publication "Where to Now?" (appendix 7) published by the Task Force which I have attached (2 volumes).

These recommendations have important implications as to the response of the District Office and the Fishery Management Division to various aspects of pipeline construction associated with exploitation of the fish resource in the Mackenzie Valley.

In summary the salient points of the recommendations of the Task Force germane to the possible effects of pipeline construction on domestic fisheries are as follows:

- 1) Harvest of fish for domestic purposes should take precedence over other forms of exploitation. The domestic needs of the indigenous people must be met and the option to preserve their traditional way of life should be maintained. Only the harvestable stock over and above these needs should be used for commercial or sports developments.
- 2.) Fisheries development should be for the benefit of the long-term residents of the north. Current fisheries should be reassessed and future developments should definitely meet this aim. Also before any commercial or sports venture is begun in an area, the domestic requirements of the native people should be assessed and subsequently protected.



Digitized by the Internet Archive
in 2025 with funding from
University of Toronto

<https://archive.org/details/31761120644174>

- 3.) Any commercial or sports developments should meet the following criteria:
- a) There has to be an adequate supply of fish (i.e., it has to be decided whether a potentially harvestable resource exists and if there would be sufficient fish in excess of domestic need to make additional harvest worthwhile).
 - b) The operation has to be economically sound in a long-term sense and to keep development options open, exploitation methods which depress the resource base for extended periods should be discouraged.
 - c) In light of the emphasis on preserving the option for the native people to pursue their traditional way of life and to protect their domestic harvest, the wishes of the long-term Northwest Territories residents should be a deciding factor as to whether a commercial or sports development goes ahead (i.e., the residents should want it).
- 4.) The decision as to the type of development to take place should be the result of a consultative process between the agencies involved (i.e., the Fisheries and Marine Service and the Northwest Territorial Government).

From the above it is evident that preservation of the option to domestically fish has been identified to be of first priority as far as fishery management in the territories is concerned. However, there is no control of domestic exploitation. This is underlined by Sections 21-25 of the N.W.T. Fishery Regulations which cover domestic fishing. Under these sections domestic fishing privileges are granted to all native persons who are at least one quarter Indian or Inuk blood. They are allowed to fish by any means, at any time of the year and in any body of water. These fisheries are not regulated by quotas nor do the participants require a licence. When the present regulations were passed in 1974 a permit system was introduced to enable the department to get a more accurate assessment of the domestic harvest, and through marking of nets for identification purposes to differentiate for enforcement purposes between domestic and commercial gear. This particular regulation has met with considerable negative reaction from the native people and is not being administered until other alternatives are investigated.

Before I proceed further with this brief, I wish to point out that the Fishery Management Division has not been directly involved with assessment programmes in the Mackenzie Valley. Rather, the Division has relied on the work of the Resource Impact Division, F & MS, surveys by F & MS Fishery Officers, and the reports of other agencies connected with the assessment of the Mackenzie fish resource to provide biological and fishery survey information. This is because of the recommended priority areas for fishery development listed by the Task Force and the low level of commercial and sports development (appendix tables 3 & 5) along the Mackenzie Valley in relation to the domestic fishery.

Consequently the opinions and recommendations I will discuss below are based on a careful consideration of the data of others (primarily the references listed in Appendix 7) not on original work by the Division. However, the Division does have some expertise in determining the harvest of domestic fisheries. A report by W. Bond (1973) of the Division on the fishery at Lac la Martre deals with an assessment of domestic harvest in that area and has been quoted by Bissett (1974) and Withler (1975) in connection with the accuracy of estimates from such surveys. In addition the Division is currently involved in monitoring the domestic fishery along the south shore of Great Slave Lake.

THE DOMESTIC FISHERY

Many authors (among them Abrahamson 1962, Bissett 1974 & 1966, Higgins 1968, Hunt et al 1974, Stein 1973, Villiers 1967) have pointed out the importance of domestic fishing both past and present in providing a source of food for native people along the Mackenzie River Valley. The significance at any given time varies with the economic conditions in a given community and the availability of alternate food sources. Domestic fishing is nevertheless an activity that is important for both social and economic reasons in all the communities along the Mackenzie River even with an increasing number of native people turning from the traditional subsistence way of life to dependence on a wage economy.

In general, fishing activities are especially important in the summer when trapping has ceased and hunting is difficult, although autumn and winter fisheries are also important in gathering a winter supply of fish especially for dog food. Fish are usually caught by gill net. The fishing sites are usually located at the mouths of rivers and streams tributary to the Mackenzie and the larger waterways such as the Peel and Liard Rivers. Back eddies along the main Mackenzie River in areas where current and debris will not destroy the nets and various channels in the Mackenzie Delta are also fished. These locations (i.e. mouths of rivers, back eddies and delta channels) are usually strategic points effectively situated to harvest known runs of fish migrating past at specific times of the year. In addition lakes in close proximity to settlements or along traditional trap lines are also fished. Some locations are used every year, others intermittently; some are used by a number of families, some by one family group. Usually there are specific fishing locations associated with each community along the river valley and the most favoured sites (i.e. most used, most frequently, by most people) are generally not far from the main settlements.

The major fish species of importance to the domestic fishery are given in appendix table 2 and the main domestic fishing areas, species by area and fishing periods are summarized in appendix table 6. Both these tables were compiled from the references in appendix 7. Also Bissett (1974), Hunt et al (1974) and the DINA Report on domestic fisheries in the Mackenzie Valley (1972) give maps showing the locations of various domestic fishing sites.

Actual and projected population by ethnic groups and community for the period 1971-81 is given by Hunt et al (1974) in Appendix D, Table 2 (pg. 95) of his report. Reference to this source allows insight into the number of native people per community in relation to fishing areas in appendix table 6.

It is exceedingly difficult to quantify domestic fish production, and this is true for the Mackenzie River domestic fishery as well as elsewhere. Fish camps are spread over wide distances, there is no one strategic location to assess the catch as there usually is in commercial fishery operations, and there is no reason for domestic fishermen to quantify production in terms of species or pounds harvested. Also, utilization of the fish is virtually complete with offal and coarse fish being fed to the dogs. As noted above there is also a reluctance on the part of the native people to have anyone interfere or pry into their domestic fishing activities and this cuts down on the accuracy of domestic production estimates.

Withler (1975) provides a review of production figures compiled from various sources, and Bissett (1974) also gives production figures in appendix E of his report.

In order to put the domestic fishery into perspective in terms of pounds, the following table after Hunt et al (1974) summarizes the estimated domestic harvest for 1972.

Table 1. Estimated domestic fish harvest along the Mackenzie River Valley, 1972.

Area	Main Species	Pounds
Lower Mackenzie	Arctic char, Whitefish, inconnu, cisco, pike, suckers	561,000
Central Mackenzie	Whitefish, cisco, inconnu, lake trout, grayling, pike, suckers	129,000
Upper Mackenzie	Whitefish, pike, suckers, walleye	134,900
	TOTAL	824,900

In addition, the following harvest estimates are provided to give an example of community use of the domestic catch:

(i) Aklavik:

A survey of the domestic fishery in Aklavik was conducted by Fishery Officer Hunt in 1973 and revealed that approximately 294,000 pounds of fish were consumed annually in the community by 677 people and 132 dogs. The dogs consumed close to 75% of this total.

(ii) Trout River:

A 1974 survey conducted in Trout River by a Fishery Officer provided an estimate of 123,000 pounds of annual fish harvest by 45 people. The 50 dogs in the community again consumed about 75% of this total.

Table I points out the fact that even though the domestic fishery is important throughout the whole Mackenzie Valley, the greatest concentration of domestic fishing is found along the Peel River and Mackenzie Delta. The estimated annual harvest for 1972 in table I shows the harvest was 68.1% of the total.

SPORTS AND COMMERCIAL FISHERIES

Exploitation by sports and commercial fishing is not heavily developed in the Mackenzie Valley area. Appendix tables 3 and 4 list the commercial fishing areas, species and quotas for the area and appendix table 5 lists facilities and species important to sports fishing. This information is provided to compare the areas where this activity occurs with the domestic fishing areas given in appendix table 6, in light of the guidelines of the Task Force on fishery development in the N.W.T. given on page 1 & 2 of this brief.

When referring to the list of commercial quotas for the area, it should be remembered that all these areas are closed on schedule V of the N.W.T. Fishery Regulations. A request has to be made each year for permission to fish any one of the quotas. Not all of the quotas are fished each year. To date the single largest commercial activity in the area has been the Holmes Creek fishery in the Mackenzie Delta. The report by Barlishen & Webber (1973) covers the history of this commercial development and serves to point out the problems associated with commercial development in the territories in general and the delta in particular.

The single area which has the largest potential for increased commercial development is the Mackenzie Delta. Even so, a marketing study by McLeod (1973) showed that the most limiting factor to any commercial fishery development in the area is transportation. For the foreseeable future the potential for a delta commercial fishery lies in selling the product in the local area. *There is a public supply of fish in the area.*

To provide a framework for such a development, the Fishery Management Division divided the Delta into zones and formulated quotas in accordance with the guidelines on page 1 and 2 in anticipation of requests for an increase in commercial fishing. These areas are defined in appendix 4 and the quotas are given in appendix 3. *Commercial fishery*

At present the sports fishery is not competitive with the domestic fishery due to its small size, the species fished and the small non-native population.

The material in the foregoing sections has been provided to put the situation up to and including the present into perspective regarding the use of the fishery resource in the Mackenzie River Valley. The point that emerges is that even with the social changes that increased transportation, communication, availability of money etc. has brought to the communities along the Mackenzie River Valley, domestic use of the resource is still a highly significant activity in terms of food production and is likely to continue to be so to the native people.

EFFECTS OF PIPELINE CONSTRUCTION

Pipeline construction in the Mackenzie Valley will affect the communities, the native people and the fish resource in several ways. These have been listed by a number of authors (Bessett 1974, Stein et al 1973a & b, Gemini North 1973).

One can consider effects which the pipeline can have on the fish resource or the environment in which it lives, during and after construction. These include possible adverse effects associated with siltation or removal of spawning gravel, blocking of fish migration, destruction of rearing areas during construction, or chemical contamination of the aquatic environment from spills after construction is complete. These will also probably affect domestic fisheries if they change the nature of the fish resource or the environment. *Not long ago*

Primarily, assessment of the impact of construction activity on the fish resource is the responsibility of the Resource Impact Division of F & MS; the Fishery Management Division is more concerned about the resulting impact on the use of the resource.

Stein et al (1973a), modified by Jessop et al (1974 & 1975), pose recommendations related to pipeline construction and operation designed to eliminate or minimize these effects on the fish resource. Stream systems where the fish resources are biologically sensitive to pipeline construction and should be avoided are listed. Species which will probably be most affected by construction activity and seasonal times when the fish resource is most biologically sensitive to construction are also given. Brunskill et al (1973) also make recommendations designed to protect the zoobenthic communities of streams during construction activities.

In appendix table 2 I have briefly outlined the spawning periods, migration timing, feeding habits and probable sensitivity of the various major fish species of importance to the people of the Mackenzie Valley after Stein et al (1973a & b) and Jessop et al (1974 & 1975).

If the recommendation of Stein et al (1973a & b) and subsequent modifications by Jessop et al (1974 & 1975) are followed, the possible detrimental effects to the fishery resource will be kept to a minimum under normal circumstances. In particular, pipeline river crossings, work camps and staging areas should not be located near or at

domestic fishing sites. Those which are, because circumstances will not allow any other course of action, should warrant stringent precautions to minimize possible effects on the resource or fishery.

Based on the above, I feel that if the pipeline is routed so as to avoid the major domestic fishery, there should be little direct interference or conflict between the two. However, care should be taken to avoid insidious effects not readily apparent. For example, blockage of a migratory run, say in the delta area, may have effects on a domestic fishery far removed from the immediate site of the disturbance, for instance along the Peel River. *Do you know any direct conflicts*

Construction activities will also affect the people in the area either directly during construction by interfering with their traditional pursuits such as domestic fishing, or indirectly by changing the way of life, or by bringing in more people who will make demands on the resource either for recreational or food purposes. Some of the main concerns of the Fishery Management Division and the District Office will be with spinoffs arising from the influx of a large number of people involved in the construction and related activities, which could lead to an increase in sports and commercial fishing possibly to the detriment of the domestic fisheries.

Arctic Gas has stated that as a matter of policy, pipeline personnel will not be permitted to engage in fishing. However, it should be recognized that enforcement of such a regulation will be up to the companies involved as F & MS cannot deny the sale of sports fishing licences to any person providing they abide by the regulations. Even if this policy were inaugurated it would not totally solve the issue as there will undoubtedly be a large number of people travelling in the Mackenzie Valley as a result of construction activity who are not employed by the pipeline companies. Also with the lack of alternate recreational outlets, it seems to the author that there is no reason not to permit sports fishing in those areas where adequate fish stocks are available and there would be no conflict with the native people. The recommendations of the Task Force on fisheries development in the N.W.T. states that more consideration should be given to encouraging the development of sports fisheries as these can yield a far greater return for each fish harvested to the people in the region and generally with less stress on the resource. It would seem that in the light of the wish by the native people in some instances to convert the fish resource to a monetary base it would be beneficial to promote sports fishing activity (i.e., those that are exposed to it from outside the territories may return as tourists because of their previous sports fishing experiences). It should be recognized that the decision to proceed with such developments is the prerogative of the native people in the areas concerned.

If adequate safeguards are devised to meet the increase in sports fishing such activity should not affect the domestic fisheries. Such safeguards could include more stringent daily catch and possession limits and increased surveillance of sports activities in the vicinity of settlements and work camps. If need be, special areas designated under the

N.W.T. Fishery Regulations can be set aside solely for domestic fishing purposes. If conflicts between sports and domestic use do occur, they will probably be connected with people-oriented problems, not overharvest of the resource by sports fishing since the species most attractive to anglers are not the major species of importance to domestic fishermen. This is another reason in my opinion why it might be a good idea from the point of view of best use of the resource for the native people to consider promoting sports fishing activity for their own benefit.

There are very few commercial fisheries presently in operation in the Mackenzie Valley and these are for the most part relatively small, the largest being the fishery in the Holmes Creek area of the Mackenzie Delta previously mentioned.

It is becoming more common, however, for domestic fishermen to enter into the local sale of their excess fish as a means of income. This then becomes a commercial venture and is increasingly being regulated as such. With the large number of personnel involved in pipeline construction it is probable that some domestic fishermen may see this as a market for their catch and request commercial quotas. If it evolves that native persons do set up commercial fisheries in the fashion just mentioned, they may have to make the choice of curtailing their domestic activities in some areas or to satisfy their domestic requirements from the commercial quotas. However this is a decision that must be left up to the people concerned because, as stated on page 1 and 2 of this brief, it is the policy of this department that a commercial fishery can only be established where it will not interfere with or detract from existing domestic fisheries. Such developments may only be of a short term economic benefit for the native persons concerned and should be recognized as such, however if properly regulated they should have no detrimental effect on the fish populations concerned.

The main problem for the Fishery Management Division will be to set realistic quotas which will satisfy the increased demand and at the same time protect the resource from overharvesting. This will especially be true in the case of migratory fish species as listed in appendix table 2. These species pose additional problems as the same population may be harvested at more than one location and at more than one time in the season. The same remarks considering insidious effects not readily apparent at the immediate site of disturbance would apply here.

CONCLUSIONS

- 1) The domestic fishery is of primary importance to the native people of the Mackenzie Valley and should be protected either from environmental disturbances or increased use of the resource by other means. The option to change from domestic use to commercial or sports harvest should remain with the native people concerned.

- 2) If proper safeguards are attached to pipeline construction and favoured domestic fishing sites are avoided there should not be detrimental effects on domestic fishing.
- 3) There is no reason to ban sports fishing for the construction period, however more stringent catch possession limits may be required and more on the spot enforcement will be needed to ensure that regulations are being observed. If conflicts do arise, then protected areas for domestic fishing can be designated.
- 4) Some incentive may exist to encourage more commercial fisheries. If this does occur then the guidelines of the Task Force on fishery development in the N.W.T. will be applied to ensure that the option to fish domestically is kept open and that the wishes of the native people are considered regarding alternate use of the fishery resource.

Appendix 1

Biographical Information

Name: Roger F. Peet

Present Position: Head, Fishery Management Division,
Fish Resources Section,
Fisheries & Marine Service,
Department of the Environment,
Winnipeg, Manitoba.

Education: BSc General Biology,
Memorial University of Nfld., 1965.
Graduate courses in Fisheries Biology,
Memorial University of Nfld., 1969-71.
MSc Programme Aspects of the Biology of the
Arctic char 1969-71 (thesis incomplete)

Professional Experience:

1965-72 Project Biologist, Fisheries & Marine
Service, Labrador, Northern Nfld. Region,
Resource Development Branch, F & MS,
St. John's, Newfoundland.

1972-74 Senior Stream Management Biologist MWT,
Fishery Management Division, Resource
Management Branch, F&MS, Winnipeg, Manitoba.

1974-Present -
Head, Fishery Management Division,
Fish Resource Section,
Fisheries & Marine Service,
Department of the Environment,
Winnipeg, Manitoba.

Appendix 2.

Summary of major fish species of importance in the Mackenzie Valley by area (after Hunt et al 1974) in relation to use (after Stein et al 1973 a & b, Jessop et al 1974 & 1975, and Bissett 1975), spawning periods, migration and sensitivity (after spawning et al ibid. and Jessop et al ibid.).

Species	Lower Mackenzie		Middle Mackenzie		Upper Mackenzie		Spawning period	Migration		Feeding Habits	Sensitivity	
	Com.	Sps.	Dom.	Com.	Sps.	Dom.		Upstream	Downstream		Silt	Fishing Chem. Stress
1. <u>Clupea harengus pallasi</u> (blue herring)	X											
2. <u>Coregonus autumnalis</u> (Arctic cisco)	X	X			X		Sept. 1- Nov. 15	late Jul. -early Oct.	Mid. Oct.- Nov.	None during up mig.	X	
3. <u>Coregonus sardinella</u> (Least Cisco)		X					"	Mid Aug.- early Oct.	"	"	X	
4. <u>Coregonus clupeaformis</u> (humpback whitefish)	X	X	X	X	X	X	"	"	"	Benthic feeder		X
5. <u>Coregonus nasus</u> (broad whitefish)	X	X			X		"	"	"	"		X
6. <u>Stenodus leucichthys</u> (Inconnu or cory)	X	X			X		"	"	"	None during up mig.	X	
7. <u>Salvelinus alpinus</u> (Arctic char)		X					"	"	late Spring?	"	X	X
8. <u>Salvelinus malma</u> (Dolly Varden)		X					-	-	-	-	X	X
9. <u>Salvelinus namaycush</u> (lake trout)	X	X	X	X	X	X	"	-	-	Piscivorous	X	
10. <u>Thymallus arcticus</u> (Arctic grayling)		X	X	X	X	X	May 1 - July 15	May - early June	late June	Insectivorous	X	X
11. <u>Esox lucius</u> (northern pike)	X	X	X	X	X	X	"	"	Mid. Aug.- Sept.	Piscivorous		
12. <u>Lota lota</u> (burbot)	X	X					late winter	-	-	"		
13. <u>Stizostedion vitreum</u> (yellow perch)					X	X	May 1 - July 15	May - early June	-	"		
14. <u>Catostomus commersoni</u> (longnose sucker)		X			X		"	"	-	Benthic feeder		

Appendix 3. Summary of Commercial fishing areas pertinent to the Mackenzie Valley Pipeline Route, from Schedule V of the Northwest Territories Fishery Regulations (PC 1975-3014, Dec. 23, 1975). Asterisks refer to notes at end of table.

Location	Waters	Species	Quota (lbs.)
<u>Lower Mackenzie*</u>			
Tuktoyaktuk area	Eskimo (Husky) Lakes (69-20N, 132-31W)	Lake Trout	25,000
		Cisco	25,000
		Whitefish	25,000
		Inconnu	2,500
	Liverpool Bay (69-45N, 130-00W)	Herring	500,000
		Cisco	25,000
		Inconnu	2,500
Inuvik Area	Sitidgi Lake (68-30N, 132-40W)	Lake Trout & Whitefish	3,000
Mackenzie Delta**	Area 1	Whitefish	5,000
		Arctic char	2,000
		Cisco	5,000
		Lake Trout	5,000
		Burbot & Pike	10,000
	Area 2	Whitefish	20,000
		Cisco	5,000
		Lake Trout	5,000
		Burbot & Pike	10,000
	Area 3	Whitefish	30,000
		Cisco	5,000
		Lake Trout	5,000
		Burbot & Pike	10,000
	Area 4	Whitefish	75,000
		Inconnu	10,000
		Herring	500,000
		Lake Trout	5,000
	Area 5 (Arctic Red R.)	Whitefish	10,000
Fort McPherson Area	Peel River (67-37N, 134-52W to junction of Satah R.)	"	5,000

Appendix 3 - continued

Location	Waters	Species	Quota (lbs.)
<u>Central Mackenzie</u>			
Fort Good Hope Area	Doris Lake (65-10N, 128-15W)	Lake Trout & Whitefish	3,100
	Manual Lake (67-00N, 128-56W)	"	10,000
	Rorey Lake (66-55N, 128-25W)	"	10,000
<u>Upper Mackenzie</u>			
Wrigley Area	Blackwater Lake (64-00N, 123-05W)	"	165,000
	Killer Lake (64-00N, 121-25W)	"	300,000
	Wrigley Lake (63-15N, 126-10W)	"	21,300
Fort Simpson Area	Sibberton Lake (61-47N, 122-43W)	"	6,500
	Willow Lake (62-11N, 119-10W)	"	18,000
	Tsetso Lake (61-51N, 123-01W)	Walleye	1,700
Trout Lake & Kakisa Lake Area	Dogface(Trefiak) Lk. (60-17N, 119-05W)	"	5,000
	Kakisa Lake (60-55N, 117-40W)	"	41,000
	Tathlina Lake (60-30N, 117-30W)	"	68,000
	MacEwan Lake (60-48N, 119-57W)	Lake Trout & Whitefish	1,300
	Reade Lake (60-53N, 119-55W)	"	500
	Tetcho Lake (60-25N, 120-45W)	"	13,000
	Trainor Lake (60-24N, 120-17W)	"	25,000
	Unnamed Lakes: (60-10N, 118-10W)	"	2,300
	(60-10N, 117-55W)	"	4,000
	(61-51N, 119-32W)	"	1,800
	(61-51N, 119-27W)	"	3,200
	(61-50N, 119-28W)	"	3,600

Appendix 3 - continued

Location	Waters	Species	Quota (lbs.)
<u>Upper Mackenzie</u>			
Fort Providence Area	Beaver Lake (61-07N, 117-08W)	Lake Trout & Whitefish	275,000

* Division of Lower, Central & Upper Mackenzie after Hunt et al, 1974.

** Definition of Mackenzie Delta areas are from N.W.T. Fishery Regulations Schedule II, part II, PC. 1975-3014, Dec. 23, 1975 attached as Appendix 4.

Part 11

APPENDIX 4.

Areas of the Mackenzie River Delta
and lower Mackenzie River

AREA I

That portion of the Mackenzie Delta bounded:

- 1) in the east by the west bank of the Middle Channel extending from a point at $67^{\circ} 37.5'$ north latitude and $134^{\circ} 15'$ west longitude to a point at the confluence of the Middle and Aklavik Channels at $68^{\circ} 7.5'$ north latitude and $134^{\circ} 27'$ west longitude.
- 2) in the north, by the north bank of the Aklavik Channel from $68^{\circ} 7.5'$ north latitude and $134^{\circ} 27'$ west longitude across to a point on the west shore of the West Channel at $68^{\circ} 14'$ north latitude and $135^{\circ} 2.5'$ west longitude located opposite the confluence of the West and Aklavik Channels.
- 3) in the west, by the west bank of the West Channel extending from $68^{\circ} 14'$ north latitude and $135^{\circ} 2.5'$ west longitude to the town of Aklavik and thence along the west bank of the Husky Channel to a point at $67^{\circ} 37'$ north latitude and $134^{\circ} 52'$ west longitude where the Husky Channel meets the Peel River.
- 4) in the south, by a line extending from $67^{\circ} 37'$ north latitude and $134^{\circ} 52'$ west longitude to the point on the west bank of the Middle Channel at $67^{\circ} 37.5'$ north latitude and $134^{\circ} 15'$ west longitude.

AREA II

That portion of the Mackenzie Delta bounded:

- 1) In the east by the east bank of the East Channel extending from Point Separation at $67^{\circ} 37'$ north latitude and $134^{\circ} 05'$ west longitude to a

- point opposite the confluence of the Oniak Channel with the East Channel at $68^{\circ} 34'$ north latitude and $133^{\circ} 58'$ west longitude.
- 2) in the north by a line extending from the point at $68^{\circ} 34'$ north latitude and $133^{\circ} 58'$ west longitude across the East Channel to the north bank of the Oniak Channel and along this bank to a point on the west bank of the Middle Channel at $68^{\circ} 28'$ north latitude and $134^{\circ} 08'$ west longitude opposite the confluence of the Oniak Channel with the Middle Channel.
 - 3) In the west and south, by the west bank of the Middle Channel, extending from $68^{\circ} 28'$ north latitude and $134^{\circ} 08'$ west longitude to a point opposite Separation Point at $67^{\circ} 37'$ north latitude and $134^{\circ} 10'$ west longitude and thence across to Separation Point.

AREA III

That portion of the Mackenzie Delta bounded:

- 1) in the east by the eastern bank of the East Channel extending from a point at $68^{\circ} 34'$ north latitude and $133^{\circ} 58'$ west longitude opposite the confluence of the Oniak Channel to a point at $69^{\circ} 00'$ north latitude and $134^{\circ} 37'$ west longitude.
- 2) in the north by a line extending from $69^{\circ} 00'$ north latitude and $134^{\circ} 37'$ west longitude across the East Channel to the north bank of the Neklek Channel and along this bank to the Middle Channel; thence across the Middle Channel to the north bank of the Reindeer Channel and along its north bank to a point at $68^{\circ} 38'$ north latitude, $135^{\circ} 47'$ west longitude on the eastern shore of Shallow Bay; thence across Shallow Bay to a point

on the west bank of the West Channel at $68^{\circ} 52'$ north latitude and $136^{\circ} 10'$ west longitude where it empties into Shallow Bay.

- 3) in the west by the west bank of the West Channel from $68^{\circ} 52'$ north latitude and $136^{\circ} 10'$ west longitude to a point at $68^{\circ} 14'$ north latitude and $135^{\circ} 2.5'$ west longitude just across from the confluence of the Aklavik Channel with the West Channel.
- 4) in the south by a line extending from $68^{\circ} 14'$ north latitude and $135^{\circ} 2.5'$ west longitude across the West Channel to the north bank of the Aklavik Channel and along it to the confluence of the Aklavik with the Middle Channel (i.e. the northern boundary of Area I); thence along the west bank of the Middle Channel to a point at $68^{\circ} 28'$ north latitude and $134^{\circ} 08'$ west longitude opposite the confluence of the Oniak Channel; thence across the middle Channel to the north bank of the Oniak Channel and along it to a point on the eastern bank of the East Channel at $68^{\circ} 34'$ north latitude and $133^{\circ} 58'$ west longitude (i.e. the northern boundary of Area II).

AREA IV

That portion of the Mackenzie Delta bounded:

- 1) in the south by the line described as the northern boundary of Area III above extending from a point at $69^{\circ} 00'$ north latitude and $134^{\circ} 37'$ west longitude across the East Channel along the north bank of the Neklek Channel, across the Middle Channel and along the north bank of the Reindeer Channel, thence across Shallow Bay to a point at $68^{\circ} 52'$ north latitude and $136^{\circ} 10'$ west longitude at the mouth of the West Channel; thence extending along the shoreline to the border of the Yukon Territory with the Northwest Territories at the meridian of longitude $136^{\circ} 27'$ west.

- 2) In the west by the Yukon, Northwest Territories border line at the meridian of longitude $136^{\circ} 27'$ west extending north to the extent of the territorial seas of Canada as defined by subsection 3(1) of the Territorial Sea and Fishery Zones Act.
- 3) In the east by a line extending from a point at $69^{\circ} 00'$ north latitude and $134^{\circ} 37'$ west longitude north along the eastern bank of the East Channel to a point on the eastern shore of Kittigazuit Bay at latitude $69^{\circ} 23'$ north latitude and $133^{\circ} 30'$ west longitude; thence north from this point along the meridian of longitude at $133^{\circ} 30'$ west to the extent of the territorial seas of Canada as defined by subsection 3(1) of the Territorial Sea and Fishery Zones Act.
- 4) In the north by the extent of the territorial seas of Canada as defined by Section 3 (1) of the Territorial Sea and Fishery Zones Act connecting the meridian of longitude at $133^{\circ} 30'$ west and $136^{\circ} 27'$ west.

AREA V

That portion of the Mackenzie River bounded:

- 1) In the north by a line extending across the river between Separation Point at $67^{\circ} 37'$ north latitude and $134^{\circ} 05'$ west longitude, to a point at $67^{\circ} 37'$ north latitude and $134^{\circ} 10'$ west longitude.
- 2) In the south by a line extending across the river at confluence of the Travailant River at $67^{\circ} 28'$ north latitude and $131^{\circ} 30'$ west longitude along the meridian of longitude at $131^{\circ} 30'$ west.

Also that portion of the Arctic Red River extending from its confluence with the Mackenzie River to a point 10 miles upstream at $67^{\circ} 19'$ north latitude and $133^{\circ} 42'$ west longitude.

Appendix 5. List of Sports fishing lodges, naturalist facilities and sports fishing areas along the Mackenzie Valley Pipeline Route (after the Explorer's Guide and various reports).

Area	Facility	Fish Species	Particulars
<u>Lower Mackenzie</u>		Arctic char, grayling, N. pike, Lake trout	
Aklavik	Richardson Range Outfitters		yr. round, nat. tour of Mackenzie Delta
Inuvik Area	lakes such as Ya Ya Lake, Sandy, Sitidgi, Eskimo & Travaillant Lakes, & Liverpool Bay		fly-out parties from Inuvik
<u>Central Mackenzie</u>		Arctic grayling, N. Pike, Lake Trout, Dolly Varden	
Fort Norman Area	Drum Lake Lodge		6 people, Jun. 15 Sept 30, Wrigley
	Tulita Tserequi Tours		Gr. Bear & Mack
Fort Franklin	Sah-Tew Lodge		July 15-Sept 30 Gr. Bear Lk & R
Coleville Lk. Area	Coleville Lk. Lodge & outpost camps		6 people yr. ro
General Area	Lakes such as Rorey & Kelly Lakes		
<u>Upper Mackenzie</u>		Arctic grayling, Yellow walleye, N. pike, Lake Trout	
Fort Simpson Area	Trout Lk. Indian Lodge Willow Lk. Lodge 3 Tour Outfits		6 people Jun- to Nahanni Nat
Fort Providence Area	Snowshoe General Store Brabant Island Camp		36 guests, Jun Sept. 30
General Area	Lakes such as Fisherman, Little Doctor, & Gli Lks.		

Appendix 6. Summary of domestic fishing areas, species caught and periods of fishing (after Bissett, 1974, DIAND Report, 1972, Stein et al, 1973 a & b & Withler, 1975). Asterisk refers to note at end of table.

Area	Summary of Domestic fishery locations	Main Species	Fishing Periods
<u>Lower Mackenzie</u>			
Tuktoyaktuk Area (H)*	Tuk. Hr., Eskimo Lks, Liverpool Bay	Cisco?, Inconnu, Whitefish	April-Sept
Inuvik Area (H)	Sitidgi Lk., East & Oniak Ch., Middle Ch., Holmes Creek, Kitigazuit, Whitefish Stn.	Inconnu, Whitefish & Lake Trout	June-November
Aklavik Area (M)	Husky & Aklavik Chs., Shoal Water Bay, West & Moose Chs., Cache Creek	Whitefish, Inconnu, Cisco, Char	June-October
Fort McPherson Area (H)	from town to 60 mi. up Peel R., Husky Ch., Rat R., Peel ch., Mackenzie R. at Pt. Separation	Whitefish, Inconnu, Cisco, Pike, Suckers & Lake Trout	July-September (lake fishery at Indian Village char, Burbot, Nov.-March)
Arctic Red River (H)	Mackenzie R., Arctic Red R. mouth to 25 mi upstream, Tree River, Travailant Lake	Whitefish, Inconnu, Burbot	July-December
<u>Middle Mackenzie</u>			
Fort Good Hope (M)	Yeltea Lake, Rorey Lk., Loon R., Mackenzie R., Hare Indian R., Lac Jacques, Tunago Lk., Lac des Bois, Lac Belot	Whitefish, Inconnu, Cisco, Lake Trout	July-February
Norman Wells & (H) Fort Norman & (M) Fort Franklin (L)	Brackett Lake, Kelly Lake, Wolverine Creek, Gr. Bear R., Wrigley Lk., McVicar Arm, Lac Ste. Therese	Whitefish, Lake Trout, Grayling, Cisco	July-November (Ft. Franklin year)
Coleville Lake (L)	Coleville Lake, Aubrey Lake	Whitefish, Lake Trout	July-April
<u>Upper Mackenzie</u>			
Wrigley (H)	Fish Lk., River Between Two Mountains, Willow Lake R. Mackenzie R., Cli Lk., Martin & Blackwater Rivers	Whitefish, Pike, Suckers, Burbot, Inconnu	year round
Fort Simpson (H)	Mackenzie & Liard R., Rabbitskin R., Martin R., Sibberton Lk., Cli Lk., Little Doctor Lk	Whitefish, Pike, Suckers, Burbot, Inconnu, Grayling	year round

Appendix 6 - continued

Area	Summary of Domestic fishery locations	Main Species	Fishing Period
<u>Upper Mackenzie</u>			
Jean Marie R. (L)	Spence R., Mackenzie R., McGill Lake	Inconnu, Grayling, Pike, Suckers, Burbot, Whitefish	June - September
Nahanni Butte (L)	Liard R., Trout Lk., Netla R.	Pike, Whitefish, Suckers	Year round
Trout Lake (M)	Trout Lk., Tetcho Lk., Trainor Lk.	Lake Trout, Walleye, Pike, Whitefish	Year round
Kakisa Lake (M)	Kakisa Lake, Beaver Lk., Tathlina Lake	Walleye, Pike, Whitefish	August-September
Fort Providence (L)	Horn R., Reade & McEwan Lks, Beaver Lake	Whitefish, Pike, Walleye	Year round

* Impact level defined in Gemini North 1973, pp 90-92

H - high,

M - Medium

L - Low

Appendix 7.

REFERENCES RELIED ON

- Abrahamson, G. 1962. Tuktoyaktuk - Cape Parry, an Area Economic Survey. Dept. Ind. & North. Affairs, AESR no. 62/2.
- Barlিশen, W.J. & T.N. Webber. 1973. A history of attempts to commercially fish the Mackenzie River Delta, N.W.T. prepared for the Federal-Territorial Task Force on Fishery Dev. in the N.W.T., unpublished.
- Bissett, D. 1974. Resource Harvests in the Mackenzie Valley. Envir.-Soc. Comm. Northern Pipelines, Task Force on Northern Oil Dev. Rept. No. 74-42.
- _____. 1966. The Mackenzie Delta, an Area Economic Survey, Dept. Ind. & North. Affairs, AESR No. 66/1.
- Bond, W.A. 1973. An investigation of the commercial fishery at Lac la Martre, Dept. of Envir., F & MS, Fish. Op. Direct., Tech. Rept. 73-5.
- Brunskill, G.J. et al. 1973. Ecological Studies of Aquatic Systems in the Mackenzie-Porcupine Drainages in relation to proposed pipeline and highway development. Envir.-Soc. Comm. Northern Pipelines, Task Force on Northern Oil Dev. Rept. No. 73-40.
- Domestic Fisheries in the Mackenzie Valley. 1972. Unpublished report of the Dept. Ind. & North. Affairs.
- Explorer's Guide 1975. Publication of Travel Arctic, Government of the N.W.T.
- Gemini North, 1973. Mackenzie Valley Social Impact Study prepared for the Government of the N.W.T.
- Hatfield, C.T. et al 1972. Fish Resources of the Mackenzie River Valley. Envir. Can. F. & MS, Interim Repts. 1, Vols. 1 & 2.
- Higgins, G.M. 1968. The Lower Liard Region, an area economic survey. Dept. Ind. & North. Affairs, AESR No. 68/3.
- Hunt, A.D. et al 1974. A report to the Task Force on Northern Oil Development, Government of Can. Envir.-Soc. Comm. Northern Pipelines, Task Force on Northern Oil Dev. Rept. No. 74-17.
- Jessop et al 1974. A further evaluation of the fish resources of the Mackenzie River Valley as related to pipeline development. Envir.-Soc. Comm. Northern Pipelines, Task Force on Northern Oil Dev. Rept. No. 74-7.
- _____. 1975. An evaluation of the fish resources of the Mackenzie River Valley based on 1974 data. Dept. of Envir., F & MS, Fish Op. Direct. Tech. Rept. CEN/T-75-6.
- McPhail, J.D. & C.C. Lindsey. 1970. Freshwater Fishes of Northwestern Canada & Alaska. Fish. Res. Bd. Can. Bull. 173.

Appendix 7 - continued

McLeod, R.H. 1973. A fish marketing study Northwest Territories.
Freshwater Fish Marketing Corp. Winnipeg.

Stein et al 1973a. An evaluation of the fish resources of the
Mackenzie River Valley as related to pipeline Development.
Vol. 1 Envir.-Soc. Comm. Northern Pipelines, Task Force
on Northern Oil Dev. Rept. No. 73-1.

1973b. Fish Resources of the Mackenzie River Valley.
Interim Rept. II. Envir.-Soc. Comm. Northern Pipelines,
Task Force on Northern Oil Dev.

Villiers, D. 1967. The central Mackenzie, an Area Economic Survey.
Dept. Ind. & North. Affairs. AESR No. 67/4.

Withler, R.E. 1975. A review of the literature concerning domestic
fisheries associated with proposed gas pipeline routes in
the Mackenzie River Valley. Aquatic Environments Ltd.

Where to Now, 1972. A federal-territorial Task Force Report on
fisheries development in the N.W.T., 2 volumes.

